

**Features:**

- Universal AC input / Full range
- Programmable output Voltage / Current (0% ~ 105%)
- Built-in active PFC Function & Oring Diode  
Built-in I<sup>2</sup>C and RS485 communication interface
- Constant current limit
- Forced current sharing at parallel operation (Refer to pg. 5 for connection diagram)
- Selectable +5V / 0.5A or +9V / 0.3A auxiliary output
- Global control via RS232 / RS485
- Remote setting multiple PSU via RS232, RS485 & I<sup>2</sup>C
- Power OK signal
- Remote ON / OFF function
- Protection: OVP, OLP, OTP, SCP, Fan failure



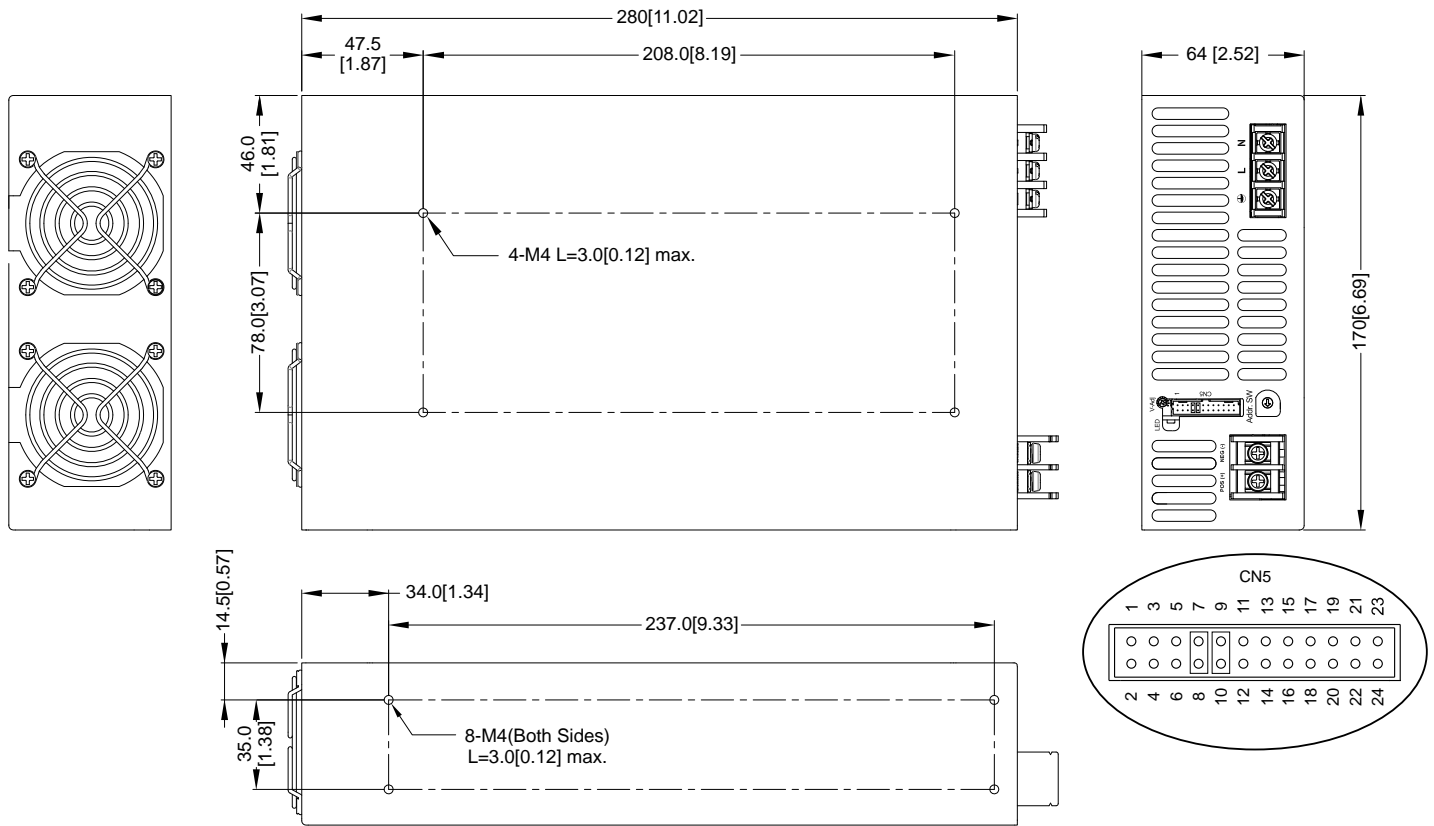
MODEL		AEK-3000-150	AEK-3000-200	AEK-3000-250	AEK-3000-300	AEK-3000-400
Output	DC Voltage Rated	150V	200V	250V	300V	400V
	Rated Current	20A	15A	12A	10A	7.5A
	Current Range	0 ~ 20A	0 ~ 15A	0 ~ 12A	0 ~ 10A	0 ~ 7.5A
	Rated Power	3000W				
	Ripple & Noise (Max.)	Note.21500mVp-p	2000mVp-p	2500mVp-p	3000mVp-p	4000mVp-p
	Voltage Adj. Range	±5.0% Typical adjustment by potentiometer. (Via V-Adj from PSU front panel)				
	Voltage Tolerance	Note.3±2.0% (rated output voltage of single unit)				
	Current Tolerance	±3.0% (rated output current of single unit)				
	Line Regulation	±1.0%				
	Load Regulation	±1.0%				
Input	Setup, Rise Time	1100ms, 350ms at full load				
	Hold Up Time (Typ.)	14ms / 230VAC at full load				
	Voltage Range	Note.490 ~ 264VAC, 127 ~ 370VDC (Refer to de-rating curve)				
	Frequency Range	47 ~ 63Hz				
	Power Factor (Typ.)	0.95 / 230VAC, 0.98 / 115VAC at full load				
	Efficiency (Max.)	91%			92%	
	AC Current (Max.)	19.7A / 115VAC (2000W), 14.5A / 230VAC (3000W)				
Protection	Inrush Current (Typ.)	33A / 115VAC, 65A / 230VAC				
	Leakage Current	< 3.5mA / 240VAC				
	Over Load	105% rated output power Protection type: Constant current limit				
	Over Voltage	Variable OVP Refer to VCI VS OVP curve.(OVP Tolerance 7%) Protection type: Latch-style (Recovery after reset AC power ON or inhibit)				
Function	Over Temperature	85 ±5℃ detect on NTC, Protection type: Auto recovery after temperature goes down				
	Auxiliary Power	Selectable +5V / 0.5A or +9V / 0.3A auxiliary output				
	Remote ON / OFF Control	By external switch				
	Power OK Signal	Open drain signal low when PSU turns on, Max. sink current: 20mA, Max. drain voltage: 40V.				
	Output Voltage Trim	Adjustment of output voltage is between 0 ~ 105% of rated output				
	Output Current Trim	Adjustment of output current is between 0 ~ 105% of rated output				
	Parallel (Current Sharing)	Note.5Please refer to page 5				
	Communication Interface	Built-in RS485 and I <sup>2</sup> C. RS232 (Optional)				
Environment	Communication Protocol	RS232, RS485 and I <sup>2</sup> C				
	Working Temp.	-20 ~ +60℃ (Refer to de-rating curve)				
	Working Humidity	20 ~ 90% RH non-condensing				
	Storage Temp. & Humidity	-40 ~ +85℃, 10 ~ 95% RH				
	Temp. Coefficient	±0.02% / °C (0 ~ 50℃)				
Safety & EMC	Vibration	10 ~ 500Hz, 2G 10min. / 1cycle, period for 60min. each along X, Y, Z axes Compliance to IEC 60068-2-6, IEC 60068-2-64				
	Safety Standards	Certified EN 62368-1; UL62368-1				
	Withstand Voltage	Note.7I/P-O/P:3KVAC(4242VDC),I/P-FG:1.5KVAC(2121VDC),O/P-FG:0.5KVAC(707VDC)				
	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC (25℃/70% )				
	EMI Conduction Radiation	Certified EN 55032				
	Power Harmonic & Voltage Fluctuation and Flicker	Certified EN 61000-3-2; EN 61000-3-3				
Others	EMS Immunity	Certified EN 55024; IEC 61000-4-2,3,4,5,6,8,11				
	Cooling	Load and temperature control fan				
	Dimension (WxHxD)	170x64x280 mm / 6.69x2.52x11.02 inch				
	Packing	3.3kg; 6pcs / 22.7kg / 2.48CUFT				

**Note**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
3. Tolerance: includes setup time tolerance, line regulation and load regulation.
4. De-rating may apply in low input voltage. Please check the de-rating curve for more details.
5. In parallel connection only one unit will operate if the total output load is less than 5% of the rated power.
6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
7. This test is done without enclosure: I/P-O/P 4242VDC. If with enclosure: I/P-O/P 2121VDC, I/P-FG:2121VDC, O/P-FG: 707VDC

## Mechanical Drawings:

Unit:mm / inch



Note: Recommended screw length is measured from the power supply surface

AC Input Terminal Pin No. Assignment

Pin No.	Assignment
L	ACL
N	ACN
⏏	⏏

Control pin number assignment (CN5): JST S24B-PHDSS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing / Contact	
1	AUX	9	EN+	17	NC.	JST PHDR-24VS or equivalent	JST SPHD-002T-P0.5 or equivalent
2	GND	10	AUX	18	NC.		
3	POK	11	ACI	19	+5VC		
4	GND	12	GND	20	GND1		
5	PAR	13	VCI	21	SCL		
6	VSET	14	GND	22	SDA		
7	EN-	15	AUX	23	DA-		
8	GND	16	GND	24	DA+		

## CN5 Function Description:

Pin No.	Function	Description	Pin No.	Function	Description
1	AUX	+5V / 0.5A or +9V / 0.3A Auxiliary power	13	VCI	V Program
2	GND	Ground	14	GND	Ground
3	POK	Power OK	15	AUX	+5V / 0.5A or +9V / 0.3A Auxiliary power
4	GND	Ground	16	GND	Ground
5	PAR	Parallel operation current share	17	NC.	
6	VSET	Aux output setting	18	NC.	
7	EN-	Inhibit ON/OFF (-)	19	+5VC	+5V power supply ,needs to be used with GND1
8	GND	Aux output setting	20	GND1	Ground ,needs to be used with +5VC
9	EN+	Inhibit ON/OFF (+)	21	SCL	Serial Clock for I <sup>2</sup> C interface
10	AUX	+5V / 0.5A or +9V / 0.3A Auxiliary power	22	SDA	Serial Data for I <sup>2</sup> C interface
11	ACI	I Program	23	DA-	For RS485 Data- Interface
12	GND	Ground	24	DA+	For RS485 Data+ Interface

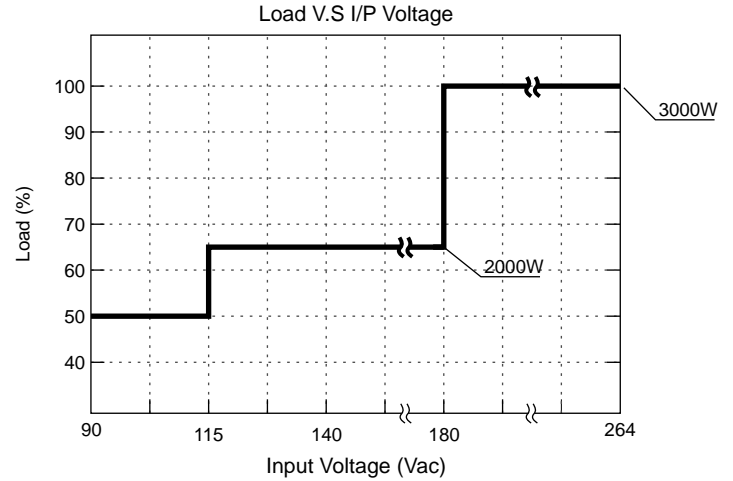
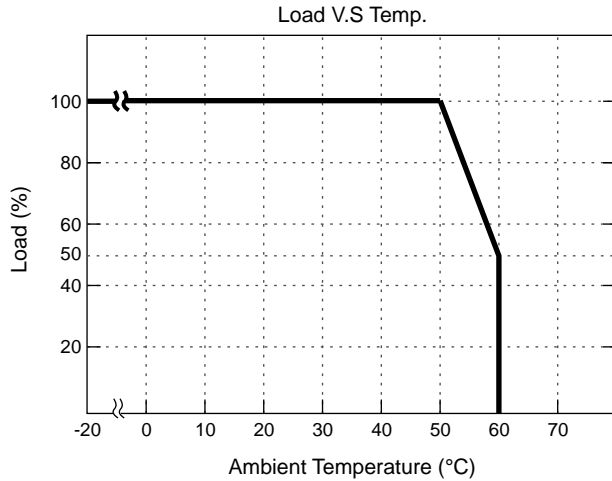
### LED Status:

LED	LED Signal	Status
Solid(Green)		Power OK (Local mode)
Solid(Orange)		Power OK (Remote mode)
Slow Blink(Green)		Power Standby
Fast Blink(Red)		Over Voltage Protection ( OVP )
Solid(Red)		Over Load Protection ( OLP )
Slow Blink(Red)		Over Temperature Protection ( OTP )
Intermittent Blink(Red)		Fan Failure
Interface Blink(Red)		Power Failure

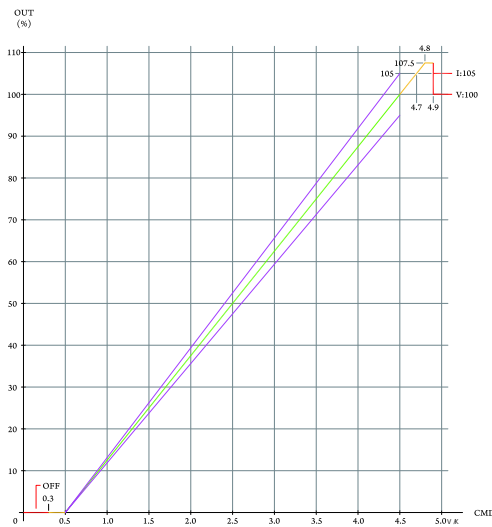
\*Local mode : Use ACI/VCI to control output current and voltage.

Remote mode : Use RS-232/485 or I<sup>2</sup>C command to control output current and voltage.

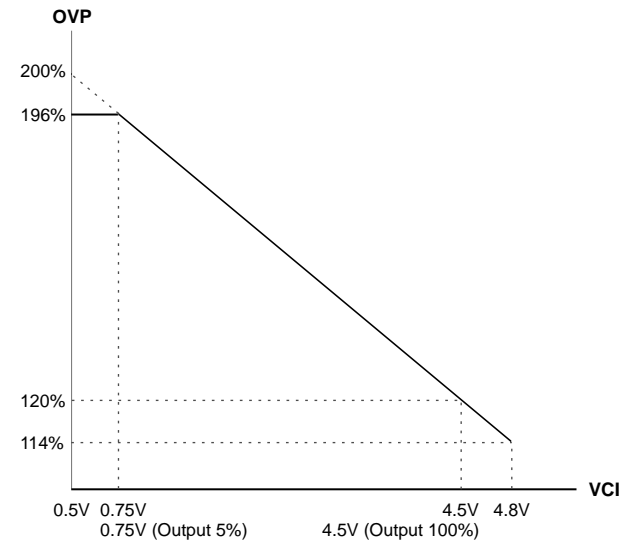
### De-rating Curve:



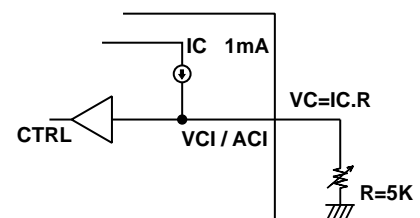
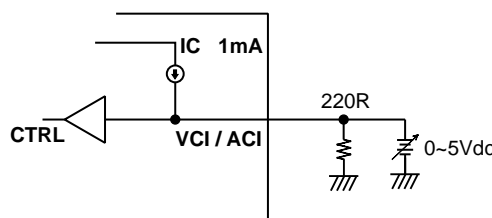
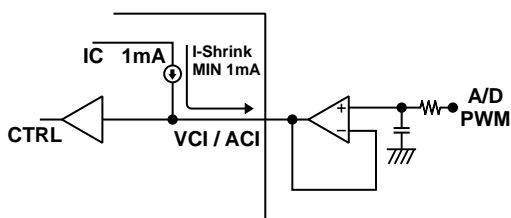
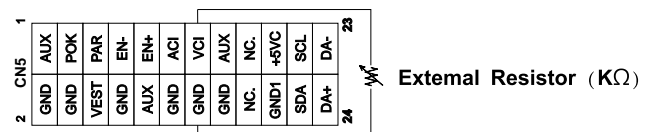
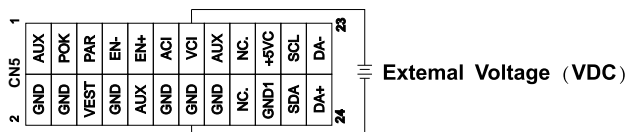
### CMD VS Output Curve:



### VCI VS OVP Curve:

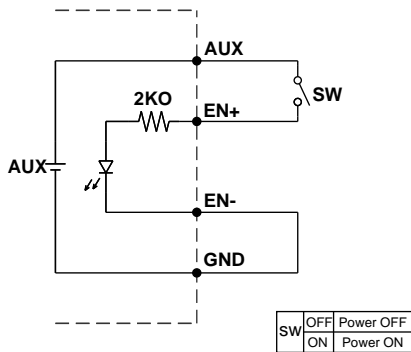


To ensure the power supply output voltage and current could be accurately adjusted, please make sure to adjust the output voltage and current > 10% vs. the rated voltage and current. (e.g. for a 300V unit, please adjust the DC output voltage above 30V to ensure accuracy; same applies to the output current)



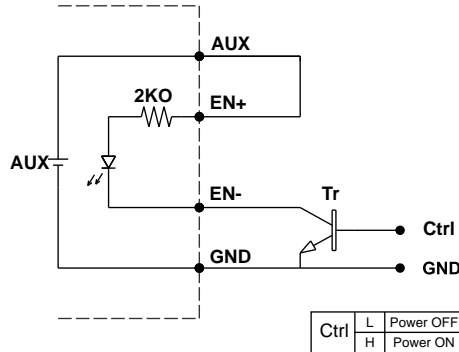
### Remote ON/OFF:

(A) Default Setting



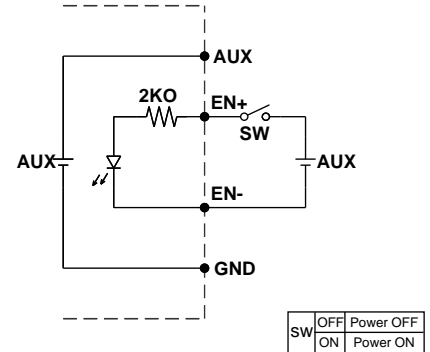
(A) Using internal 5V auxiliary source

(B)



(B) ON / OFF Control by NPN transistor

(C)



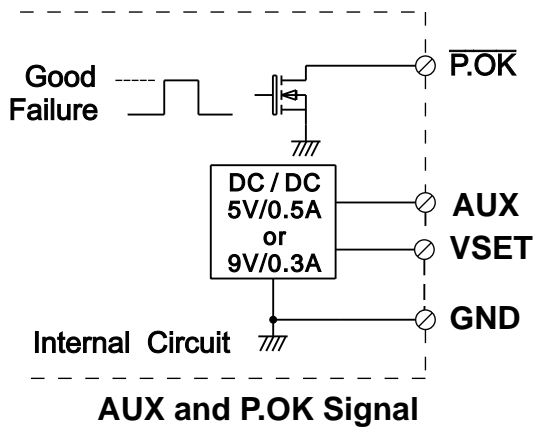
(C) Using external voltage source

\*GND shown in above diagram is referring to the GND of CN5, not the Grounding from main power(NEG-).\*

### Power OK Signal & Auxiliary Power Setting:

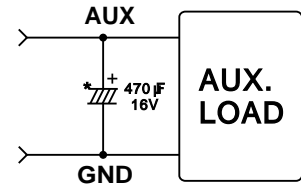
\*The grounding of "AUX" power and P.OK signal should be connected to "GND" port. If "VO-" is connected as Grounding, make sure to short the GND and VO- ports.

Open drain signal low when PSU turns on, Max.  
P.OK sink current: 20mA, Max. drain voltage: 40V.



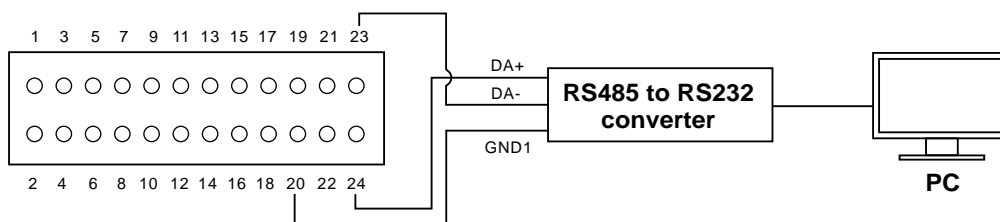
\*GND shown in above diagram is referring to the GND of CN5, not the Grounding from main power(NEG-).\*

\*Place an additional capacitor to have a better performance of auxiliary power operation.



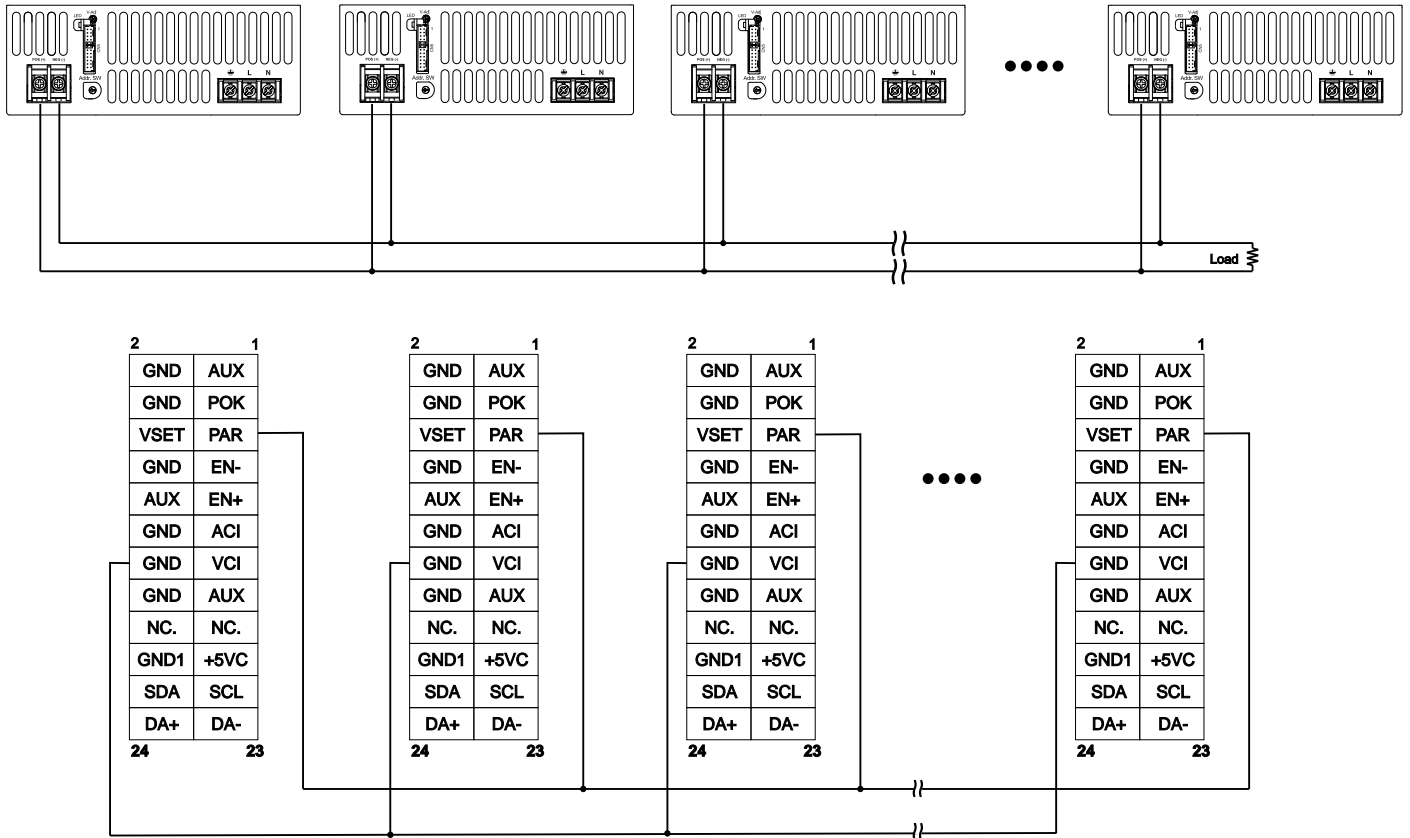
Do NOT exceed 5V/0.5A or 9V/0.3A

### RS485 communication connection diagram



Note: Make sure GND1 (pin 20) is connected to the external communication kit when using RS485 / I<sup>2</sup>C

### 1. Current Sharing



### Remarks:

- AEK-3000-HV Oring diode has the built-in active current sharing function to support max. of 8pcs connected in parallel condition to support higher output power. When performing parallel connection, make sure to note the followings:
  - Please connect PAR pins together for current sharing function
  - Among the parallel connection units, output voltage difference of each PSU should be <0.2VDC (This can be set via V-adj from the PSU front panel VR)
  - Total output current must not exceed 90% of the rated power in parallel condition  
Maximum output current at parallel condition = rated current per unit x number of unit x 0.9
  - To ensure current share balance, output current of each unit must be >10% vs. the rated output current
- For Series connection, please find some of the remarks as follow:
  - Max. units for series connection is 2pcs
  - Total output current must not exceed 90% of the rated power in series condition  
maximum output current at series condition = rated current per unit x 0.9
  - Make sure to isolate all the signals from CN5, except I<sup>2</sup>C/RS485, Pin 19, 20 and +5VC

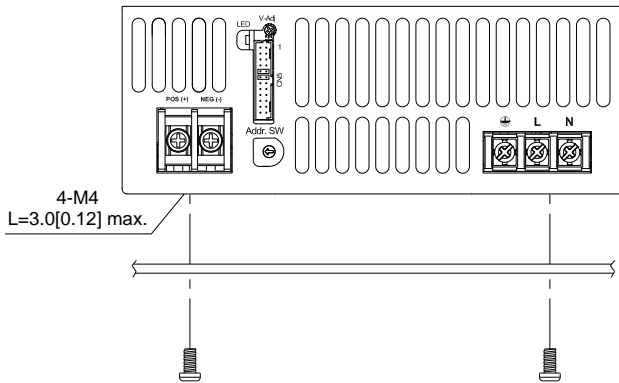
### Installation Instruction:

#### 1. Mounting Directions

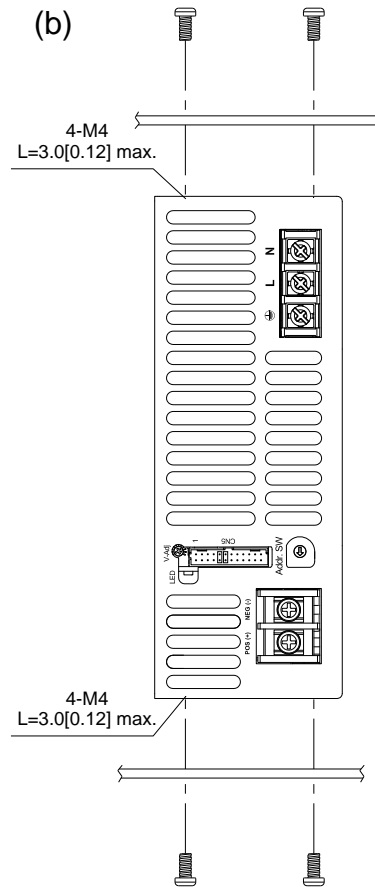
1-1 Recommended standard mounting methods :

Unit: mm [inch]

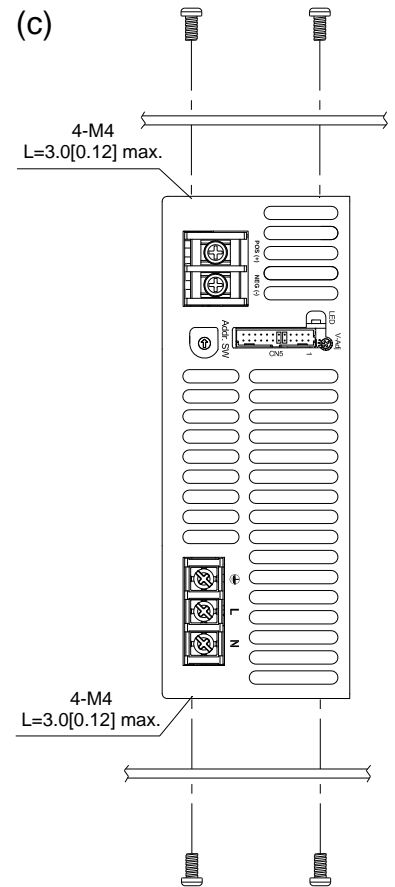
(a)



(b)



(c)



Recommended screw length is measured from the power supply surface

#### 2. Mounting Method

2-1 There are ventilating holes on the front and back side panels, do not obstruct; allow 50mm at least for air flow.

2-2 The Maximum allowable penetration of screw is 3mm. Incomplete threading should not be penetrated .

2-3 Recommended the torque of mounting screw:  
M4 screw: 1.27N · m (13.0kgf · cm)

